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(54) **APPARATUS AND METHOD FOR 2-DIMENSIONAL STEERED-BEAM NXM OPTICAL SWITCH USING SINGLE-AXIS MIRROR ARRAYS AND RELAY OPTICS**

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(51) **Int. Cl.**[7] **G02B 26/00**; G02B 27/10

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(58) **Field of Search** 359/290, 291, 359/618, 627

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(57) **ABSTRACT**

A beam steering module and switching system. The steering module is composed of a N×M array of single axis mirrors able to rotate about a particular axis (X-axis), a second N×M array of single axis mirrors able to rotate about an axis orthogonal to that of the first N×M array of mirrors (Y-axis), and a relay lens designed to image the first mirror array onto the second mirror array such that the beam angle may be controlled in both the X and Y-axis by adjusting the angle of the appropriate mirrors in the X and Y mirror arrays. Two steering modules may be combined to form a switching system. With two such steering modules, it is possible to completely determine, at the plane of the output fiber array, the position and angle of an optical beam emerging from any of the input fibers.

23 Claims, 4 Drawing Sheets